

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***RESPONSE TO COMMENTS***

ON THE CONDITIONAL MAJOR DRAFT PERMIT No.: F-06-061

LEXMARK INTERNATIONAL, INCORPORATED

LEXINGTON, KY 40550

AUGUST 16, 2007

RICK SHEWEKAH, REVIEWER

SOURCE ID:	21-067-00012
AGENCY INTEREST #:	1058
ACTIVITY ID:	APE20040002

**SOURCE DESCRIPTION:**

The Lexington facility of Lexmark International, Incorporated (Lexmark) located at 740 West New Circle Road, Lexington, Kentucky 40550, houses its corporate headquarters and research and development laboratories. The facility conducts research and development for laser printer cartridges and ink jet cartridges for Lexmark's printing technologies. Some of the designs and processes developed at Lexmark's Lexington location are modified and implemented as production level processes at Lexmark's world wide manufacturing plants.

**PUBLIC AND U.S. EPA REVIEW:**

On May 3, 2007, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *The Lexington Herald Leader* in Lexington, Kentucky. The public comment period expired 30 days from the date of publication.

Comments were received from Melissa McDonald of URS Corporation, the consultant to Lexmark International, Inc., on May 24, 2007. Attachment A to this document lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments received, however, in no case were any emissions standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A for a detailed explanation of the changes made to the permit.

# ATTACHMENT A

## Response to Comments

Comments on Lexmark International, Inc.'s draft Conditional Major operating permit were submitted by Melissa McDonald of URS Corporation, the consultant to Lexmark International, Inc.

### TITLE V PERMIT:

1. Section D of the draft permit currently contains a source-wide 90-ton per year NOx limit in addition to extensive monitoring and record keeping requirements for all boilers and each of the twenty-three emergency generators. Lexmark proposes to replace this limit with a 50-ton per year NOx limit on boilers EP 200-1 and EP 801 through EP 808. Through the operating hours limitation in Section B, the twenty-one non-federally regulated emergency generators units (EP 800 and EP 810) are already limited to 40.8 tons of NOx per year. Therefore, limiting the remaining boilers and emergency generators to 50-tons of NOx per year achieves the same source-wide compliance goal of less than 100 tons of NOx emissions per year. Using the existing fuel management system, Lexmark will maintain records of the total fuel usage for all emergency generators, as well as the individual usage records required for the two (2) emergency generators subject to New Source Performance Standards (40 CFR Part 60, Subpart IIII).

*Division's response: The Division has revised **Section D.3. Source Emission Limitations**, such that the NOx emissions from boilers EP 200-1 and EP 803 through EP 808 are limited to less than 50 tons per year. With this more conservative limitation the permittee is not required to record the fuel usage for the emergency generators and emergency fire pump because compliance with the fuel usage limitations for the boilers, and the restriction on the hours of operation for the generators/fire pump in permit Section B, are sufficient to ensure that the source-wide emissions of NOx are limited to less than 90 tons per year. The Division has not revised **Section D.3.a. Source Emission Limitations** as requested (i.e., replace the source-wide emission limitation with individual emission unit limitations on boilers EP 200, EP 803 through EP 808), since precluding the applicability of 401 KAR 52:020, Title V Permits and 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality, are based on federally enforceable source-wide emission limitations. However, to clarify that boilers EP 200-1 and EP 803 through EP 808 are subject to a NOx emission limitation, the Division has included the requested NOx limit for the boilers as paragraph d under **Section D.3. Source Emission Limitations**.*

*The Division has revised the permit as follows (additions in **bold**, deletions in ~~strikeout~~):*

3. Source Emission Limitations:

~~The source requirements are applicable to the following emission units:~~

EP 200-1 ( )	Cleaver Brooks Boiler, Model CB900-125LP
EP 808 ( )	Babcock & Wilcox Boiler, Model FM 10-61
EP 803 ( ) EP 807 ( )	Combustion Engineering Boiler, Model VP 21-11 (each of EP803-EP806); Babcock & Wilcox Boiler, Model FM 10 #61B (EP807)

~~EP 800 (--) and EP 810 (--) EP 800 is comprised of twenty one (21) diesel-fired emergency generators (plant ID Nos. 001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1); and EP 810 is one (1) diesel-fired emergency fire pump.~~  
~~EP 801 (--) and EP 802 (--) Two (2) diesel-fired emergency generators each with a maximum capacity of 1,502 horsepower.~~

- a. To preclude the applicability of 401 KAR 52:020, *Title V Permits*, and 401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality*, total annual source-wide emissions shall not exceed the following specific limitations on a twelve (12) consecutive month basis:
  - i. Sulfur dioxide (SO<sub>2</sub>) emissions: < 90 tons per year;
  - ii. Particulate matter, with a size of less than ten (10) micrometers (PM<sub>10</sub>), emissions: < 90 tons per year;
  - iii. Nitrogen oxides (NO<sub>x</sub>) emissions: < 90 tons per year; and
  - iv. Carbon monoxide (CO) emissions: < 90 tons per year.
- b. The sulfur content of No. 5 fuel oil input to the Boilers (EP 803 through EP 808), shall not exceed 0.5% by weight.
- c. The sulfur content of No. 2 fuel oil input to the Boiler (EP 200-1), shall not exceed 0.5% by weight.
- d. ~~The sulfur content of No. 2 fuel oil for the twenty three (23) diesel-fired emergency generators EP 800, EP 801, EP 802, and the one (1) diesel-fired emergency fire pump shall not exceed 0.5% by weight.~~
- d. **The total emissions of nitrogen oxides (NO<sub>x</sub>) from the Boilers (EP Nos. 200-1 and 803 through 808) shall be limited to less than fifty (50) tons per twelve (12) consecutive month period, with compliance determined at the end of each month.**

*Compliance Demonstration Method:*

The permittee shall demonstrate compliance with 3. Source Emission Limitations as specified below. The permittee shall also comply with the operating and emission limitations specified in Section B for the listed emission points.

- a. ~~The total emissions of sulfur dioxide (SO<sub>2</sub>) shall be limited by the following equation, with compliance determined at the end of each month:~~

$$\text{SO}_2\text{-Emissions} = \sum_{n=1}^m [(FO5_B * 0.0785) + (NG_B * 0.6) + (FO2_B * 0.071) + (FO2_G * 0.042)] / 2,000$$

~~< 90.0 tons per twelve (12) consecutive month period~~

Where,

~~n = Month Number (i.e. January = 1, February = 2, etc.);~~

~~m = Total Number of Months in Period;~~

~~FO5B = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;~~

~~NG-B = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1;~~

~~FO2-B = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;~~

~~FO2-G = Usage of No. 2 Fuel Oil (gallons) for all Emergency Generators and Fire Pump.~~

~~Compliance with the fuel usage restriction above shall limit the source-wide emissions of SO<sub>2</sub> to less than 90 tons per year, based on AP-42 emission factors.~~

- ba. The total emissions of nitrogen oxides (NO<sub>x</sub>) **from the Boilers (EP Nos. 200-1 and 803 through 808)** shall be limited by the following equation, with compliance determined at the end of each month:

$$\text{NO}_x \text{ Emissions (tons)} = \sum_{n=1}^m \frac{[(\text{FO5}_B * 0.055) + (\text{NG}_B * 100) + (\text{FO2}_B * 0.02)) + (\text{FO2}_G * 0.62)]}{2,000}$$

~~< 90.0~~ **50.0** tons per twelve (12) consecutive month period

Where,

n = Month Number (i.e. January = 1, February = 2, etc.);

m = Total Number of Months in Period;

FO5<sub>B</sub> = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;

NG<sub>B</sub> = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1; **and**

FO2<sub>B</sub> = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;

~~FO2G = Usage of No. 2 Fuel Oil (gallons) for Emergency Generators and Fire Pump.~~

**When combined with the Section B operating limitations for EP 800 (--), EP 801(--), EP 802(--), and EP 810 (--), compliance with the fuel usage restriction above shall limit the source-wide emissions of NO<sub>x</sub> to less than 90 tons per year, based on AP-42 emission factors.**

- eb. Compliance with the NO<sub>x</sub> and SO<sub>2</sub> emission limitations of paragraphs a. and b. above **3d. Source Emission Limitations** will also limit emissions of PM-10 and CO to less than ~~400~~ **90** tons per year each. **Compliance with the NO<sub>x</sub> emission limitation of 3d. Source Emission Limitations and the sulfur content limits of 3.b and 3c. Source Emission Limitations will limit emissions of SO<sub>2</sub> to less than 90 tons per year.**
- dc. The permittee shall demonstrate that the sulfur content of the No. 5 fuel oil for the Boilers (EP 803 through EP 808) does not exceed 0.5% by weight by providing vendor analysis of fuel delivered.
- ed. The permittee shall demonstrate that the sulfur content of the No. 2 fuel oil for the Boiler (EP 200-1) does not exceed 0.5% by weight by providing vendor analysis of fuel delivered.

- f. ~~The permittee shall demonstrate that the sulfur content of the No. 2 fuel oil for the twenty-three emergency generators (EP 800, EP 801, and EP 802) and the one (1) emergency fire pump does not exceed 0.5% by weight by providing vendor analysis of fuel delivered.~~
4. Source Monitoring Requirements:
- a. The permittee shall monitor and record total monthly and consecutive 12-month usage of No. 5 fuel oil and natural gas for Boilers EP 803 through EP 808.
  - b. The permittee shall monitor and record total monthly and consecutive 12-month usage of No. 2 fuel oil and natural gas for Boiler EP 200-1.
  - c. ~~The permittee shall monitor and record total monthly and consecutive 12-month usage of No. 2 fuel oil for the twenty-three (23) emergency generators (EP 800, EP 801, and EP 802) and the one (1) emergency fire pump.~~
5. Source Recordkeeping Requirements:
- The permittee shall maintain the following records which shall be made available within 30 days of the end of each compliance period and retained for at least five (5) years:
- a. The permittee shall keep records of the total monthly and consecutive 12-month usage of No. 5 fuel oil and natural gas for Boilers EP 803 through EP 808.
  - b. The permittee shall keep records of the total monthly and consecutive 12-month usage of No. 2 fuel oil and natural gas for Boiler EP 200-1.
  - c. ~~The permittee shall keep records of the total monthly and consecutive 12-month usage of No. 2 fuel oil for the twenty-three (23) emergency generators (EP 800, EP 801, and EP 802) and for the one (1) emergency fire pump.~~
  - dc. To document compliance with ~~the sulfur content limitation of 3.a, b, c, and d.~~ Source Emission Limitations, the permittee shall maintain the following records:
    - i. Calendar dates covered in the compliance determination period;
    - ii. A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the liquid fuel combusted during the period;
    - iii. Fuel supplier certifications;
    - iv. The name of the fuel supplier; and
    - v. A statement from the fuel supplier that certifies the sulfur content of the fuel oil.
6. Source Reporting Requirements:
- a. The permittee shall submit a semiannual report to the Division's Frankfort Regional Office for the following:
    - i. A report of the usage of No. 5 fuel oil, the usage of natural gas, and the average fuel heat content for Boilers EP 803 through EP 808.
    - ii. A report of the usage of No. 2 fuel oil, the usage of natural gas, and the average fuel heat content for Boiler EP 200-1.
    - iii. ~~A report of the usage of No. 2 fuel oil for the twenty-three (23) emergency generators (EP 800, EP 801, and EP 802) and the one (1) emergency fire~~

~~pump (EP 810).~~

The semiannual report shall be submitted with the semiannual report required in Section F.5 and the annual compliance certification required in Section F.9.

- b. The permittee shall report exceedances or deviations of all operating and emission limitations to the Division's Frankfort Regional Office in accordance with Section F-Monitoring, Recordkeeping, and Reporting Requirements.
2. Please remove the compliance demonstration method in permit Section D for the sulfur dioxide (SO<sub>2</sub>) limit. The proposed limit in comment (1) above also effectively limits sulfur dioxide (SO<sub>2</sub>), particulate matter (PM/PM-10), and carbon monoxide (CO) to less than Part 70 major source thresholds. Therefore, the NO<sub>x</sub> compliance demonstration method for the boilers and emergency generators EP 801 and EP 802 also demonstrates compliance with all Section D source-wide limits.

*Division's response: The Division has revised the permit to remove **Section D.3 Source Emission Limitations, Compliance Demonstration Method, paragraph a.** as requested since compliance with the 50-ton per year NO<sub>x</sub> emission limitation for the boilers (EP 200-1 and EP 803 through EP 808) will also restrict the emissions of sulfur dioxide (SO<sub>2</sub>). However, in order to limit source-wide emissions of SO<sub>2</sub> to less than 90 tons per year it is also necessary to limit the sulfur content of the fuel oil used in the boilers. As such, the Division has revised **Section D.3. Source Emission Limitations, Compliance Demonstration Method b.** as follows (additions in **bold**, deletions in ~~strikeout~~):*

- eb. Compliance with the NO<sub>x</sub> and SO<sub>2</sub> emission limitations of ~~paragraphs a. and b. above~~ **3d. Source Emission Limitations** will also limit emissions of PM-10 and CO to less than ~~400~~ **90** tons per year each. **Compliance with the NO<sub>x</sub> emission limitation of 3d. Source Emission Limitations and the sulfur content limits of 3.b and 3c. Source Emission Limitations will limit emissions of SO<sub>2</sub> to less than 90 tons per year.**

#### STATEMENT OF BASIS:

The Statement of Basis has been revised to reflect the changes that were made to the permit as a result of comments made during the public notice period.

#### ADDITIONAL CHANGES TO THE PERMIT AND STATEMENT OF BASIS:

1. During this review the Division has also made the following revision to the permit and statement of basis (additions in **bold**, deletions in ~~strikeout~~). This revision was necessary because emergency generator No.: 200-1 is included under emission point EP 800 (--) and it does not have a separate emission point ID as was indicated in the draft permit that went to public notice.

## SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

EP 800 (--); **and** EP 810 (--); ~~and EP 200-1(→)~~

Description: EP 800 is comprised of twenty-one (21) diesel-fired emergency generators (plant ID Nos. 001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1); EP 810 is one (1) diesel-fired emergency fire pump.

Maximum Capacity: 4864.2 HP (EP 800), 400 HP (EP 810), 5,264.2 HP (combined)

Control Device: None

Construction Dates: Prior to July 11, 2005

2. During this review the Division has removed the following insignificant activities from permit Section C as these activities have been removed from the plant (deletions in ~~strikeout~~). Additionally, the list of insignificant activities removed from the plant has been included in the statement of basis.

Description of Activity	Generally Applicable Regulation
EP 106 and EP 107 Printer Repair	401 KAR 63:020
EP 107 Printer Repair	401 KAR 63:020
EP 501 Laser Ablation	401 KAR 59:010
EP 138 Motor Soldering Line	401 KAR 63:020
EP 139 Motor Assembly Line	None
EP 501 Inkjet Printer Repair	401 KAR 63:020
EP 519 Parts Cleaning	401 KAR 63:020
EP 055 5 H <sub>2</sub> SO <sub>4</sub> Tank	None
<del>Cure of adhesive and solder mask in curing ovens manufactured by BTU or equivalent (11 each)</del>	None
Selective soldering and desoldering of cards using Air Vac PCBRM 12 reflow module or equivalent (6 each)	401 KAR 59:010
Card separation using ATI model 204 router or equivalent (3 each)	401 KAR 59:010
(Hand Soldering) Joint soldering and desoldering using Edsyn 951 HP soldering stations or equivalents. <del>Air Vac DRS 12(4), DRS 14(5), ORS 15(1), DRS 21(8), DRS 22(2), or equivalent</del>	401 KAR 59:010

Description of Activity	Generally Applicable Regulation
Manual application of conformal coating for component and board protection	None
Final assembly by manually applying cyanoacrylate/sealant adhesive	None
Manual cleaning of stencils, uncured adhesive, components, nozzles, etc.	None
Manual cleaning of nozzles using acetone	None
(Quality Control Device) Ionic test using Alpha Ionograph	None
Gold Tab Repair	None
EP 3201 – EP 3203 Labs	None
EP 3212 – EP 3214 Labs	None
EP 3216 – EP 3222 Labs	None
EP 3227 – EP 3229 Labs	None
EP 3250 Lab	None
EP 1042 Beringer Mini-jet Cleaner	None
EP 1048 Kilo Ink Processing Dry Ingredients	401 KAR 59:010
EP 1050 Ball Mills – 2	401 KAR 59:010
EP 1051 Ink Mix – Tech 111/COR/RES/Dry Ingredients	401 KAR 59:010
EP 1061 Ball Mill Room Exhaust	401 KAR 59:010
EP 1065 Chili Roll Extruder	None

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.